

# **WATER RESISTANT, VENTILATORY EXAMINING DEVICE FOR CLOTH**

## **BACKGROUND OF THE INVENTION**

### **1. Field of the Invention**

The present invention relates to an examining device, and more particularly to a water resistant and ventilatory examining device for cloth to see if the cloth produced is able to resist water penetration and is air-permeable.

### **2. Description of Related Art**

Nowadays, cloth made for clothes has meshes smaller than a water molecule and larger than an air molecule so that the cloth is able to resist water penetration and still allow air to penetrate. Thus, when a user is wearing clothes made of the specially produced cloth, the rain drops will not penetrate the cloth and the user is able to keep dry during a rainy day. In the meantime, the moisture perspired by the user is able to penetrate the cloth and the user is able to feel comfortable even after a large amount of perspiration.

In order to test whether the cloth so produced has the desired function, different and expensive machinery is introduced to the market. Although they do meet the requirements and successfully test the cloth, complex steps and large manual effort are involved, which hinders the popularity of the existing testing devices.

To overcome the shortcomings, the present invention tends to provide an improved examining device to mitigate the aforementioned problems.

## **SUMMARY OF THE INVENTION**

The primary objective of the present invention is to provide an improved water resistant and ventilatory examining device for cloth. The examining device is simple in structure and low in cost.

Other objects, advantages and novel features of the invention will become more

1     apparent from the following detailed description when taken in conjunction with the  
2     accompanying drawings.

3     BRIEF DESCRIPTION OF THE DRAWINGS

4             Fig. 1 is an exploded perspective view of the examining device of the present  
5     invention;

6             Fig. 2 is a partial enlarged schematic view showing the connection of the  
7     examining device

8             Fig. 3 is a perspective view showing the assembled examining device of the  
9     present invention;

10            Fig. 4 is a schematic cross sectional view showing the application of the  
11    examining device;

12            Fig. 5 is an exploded perspective view showing a different embodiment of the  
13    examining device of the present invention;

14            Fig. 6 is a perspective view showing the assembled examining device of the  
15    present invention; and

16            Fig. 7 is a schematic cross sectional view showing the application of the  
17    examining device of the present invention.

18     DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

19            With reference to Fig. 1, the water resistant and ventilatory examining device  
20    for cloth includes a first container (10), a second container (12), a connector (15)  
21    sandwiched between the first container (10) and the second container (12) and an air  
22    supply device (14).

23            The first container (10) has a bottom open end defined in a bottom end of the  
24    first container (10) and a top open end defined in a top end of the first container (10). A  
25    first annular groove (11) is defined in an outer periphery adjacent to the open end.

1           The second container (12) has an open end defined in a top end of the second  
2 container (12) and a closed end defined in a bottom end of the second container (12). A  
3 second annular groove (13) is defined in an outer periphery adjacent to the open end of  
4 the second container (12). An air hole (120) is defined through a side wall of the second  
5 container (12) to allow the surrounding air to communicate with the inside of the second  
6 container (12).

7           The air supply device (14) has an air bulb (141) and a tube (142) extending from  
8 the air bulb (141) and having a nozzle (143) formed on a free end of the tube (142) to  
9 correspond to the air hole (120) of the second container (12).

10          With reference to Fig. 2 and using Fig. 1 for reference, it is noted that the  
11 connector (15) is a ring-like member and has an upper ring (15a) with a first annular  
12 projection (151) formed on an inner face of the upper ring (15a) to correspond to the first  
13 groove (11) of the first container (10) and a lower ring (15b) with a second annular  
14 projection (152) formed on an inner face of the lower ring (15b) to correspond to the  
15 second groove (13) of the second container (12).

16          With reference to Fig. 3, when the examining device is assembled, it is to be  
17 noted that the nozzle (143) is securely connected to the air hole (120) of the second  
18 container (12). The second annular projection (152) is received in the second groove (13)  
19 of the second container (12) and the first annular projection (151) is received in the first  
20 groove (11) of the first container (10).

21          With reference to Fig. 4, when the examining device of the present invention is  
22 in application with a cloth (16), the cloth (16) is placed on top of the connector (15).  
23 Then, after the first container (10) is placed on top of the connector (15) and the first  
24 annular projection (151) is received in the first groove (11) of the first container (10), the  
25 cloth (16) is securely clamped by an inner face defining the first groove (11) and the first

1 annular projection (151) of the connector (15). When the aforementioned assembly is  
2 completed, the first container (10) is filled with water from the top open end of the first  
3 container (10) and air is pumped into the second container (12) by an operator squeezing  
4 the air bulb (241). Therefore, the user is able to observe whether the cloth (16) is water  
5 resistant and ventilatory by observing whether water passes down into the second  
6 container (12) and air passes up into the first container (10).

7 With reference to Fig. 5, a different embodiment of the present invention is  
8 shown and has a first container (20), a second container (22), an air supply device (24)  
9 and a securing device (25).

10 The first container (20) has two open ends with a top ring (21) formed on a  
11 peripheral top edge of the first container (20) and having multiple through holes (210)  
12 defined through the top ring (21). The second container (22) has an open end formed on  
13 a top of the second container (22) and a closed end formed on a bottom of the second  
14 container (22) and having a bottom ring (23) formed on a peripheral bottom edge of the  
15 second container (22) and having multiple threaded holes (230) defined through the  
16 bottom ring (23) to correspond to and align with the through holes (210) of the top ring  
17 (21). An air hole (220) is defined through a side wall of the second container (22) to  
18 allow the surrounding air to communicate with the inside of the second container (22).

19 The air supply device (24) includes an air bulb (241), a tube (242) extending out  
20 from the air bulb (241) and a nozzle (243) formed on a free end of the tube (242) to  
21 correspond to the air hole (220) of the second container (22).

22 The securing device (25) has multiple threaded bolts (251) and nuts (252) to  
23 correspond to the through holes (210) of the first container and the threaded holes (230)  
24 of the second container (22).

25 With reference to Fig. 6, it is noted that after the examining device of the present

1 invention is assembled, the threaded bolts (251) are extended through the through holes  
2 (210) and into the threaded holes (230) to combine the first and the second containers  
3 (21,22). The nuts (252) are applied to screw onto the threaded bolts (251) so as to  
4 securely engage the first container (21) with the second container (22). The nozzle (243)  
5 is connected to the air hole (220) of the second container (22).

6 With reference to Fig. 7, before the application of the examining device, a cloth  
7 (26) is first sandwiched between the bottom of the first container (20) and the top of the  
8 second container (22). After the extension of the threaded bolts (251) into the through  
9 holes (210) and the threaded holes (230) and the nuts (252) are screwed onto the  
10 threaded bolts (251), the secure engagement between the first container (20) and the  
11 second container (22) securely clamps the cloth (26). Thus by pouring water into the  
12 first container (20) from the top open end of the first container (20), an operator is able  
13 to observe whether the cloth (26) is water resistant by whether water passes through the  
14 cloth. In the meantime, pumping air into the second container (22) by the operator  
15 squeezing the air bulb (241) to cause air to pass into the second container (22) via the  
16 nozzle (243) reveals whether bubbles pass through the cloth (26) and into the water in  
17 the first container (20). If bubbles do pass through the cloth (26), the cloth (26) is  
18 ventilatory.

19 It is to be noted that the entire structure of the examining device is simple and  
20 thus the cost is low. Further the testing procedure is quite easy for the operator so that the  
21 test can be performed any time at any place.

22 It is to be understood, however, that even though numerous characteristics and  
23 advantages of the present invention have been set forth in the foregoing description,  
24 together with details of the structure and function of the invention, the disclosure is  
25 illustrative only, and changes may be made in detail, especially in matters of shape, size,

- 1 and arrangement of parts within the principles of the invention to the full extent
- 2 indicated by the broad general meaning of the terms in which the appended claims are
- 3 expressed.